

WHAT IS CLAIMED IS:

1. A liquid crystal display comprising:

a liquid crystal panel assembly including a plurality of gate lines, a plurality of data lines which are insulated from and intersects the gate lines, and a plurality of pixels each of which is formed in an area defined by of the data line and the gate line and has a switching element connected to the gate line and the data line;

a gate driver for supplying gate voltages to the gate lines;

at least one data driver for supplying data voltages corresponding to image data to the data lines; and

a timing controller for comparing n th image data applied from outside and $(n-1)$ th image data stored therein and selectively providing the n th image data to the data driver depending on the comparison result.

2. The liquid crystal display of claim 1, wherein the timing controller generates an operation control signal based on the comparison result and provides the operation control signal to the data driver and the data driver is operated with a mode, based on the operation control signal, selected from a holding mode which provides data voltages corresponding to the stored $(n-1)$ th image data, an inverting mode which provides data voltages corresponding to the inverted $(n-1)$ th image data, and an updating mode which provides data voltages corresponding to the n th image data provided from the timing controller.

3. The liquid crystal display of claim 2, wherein

the timing controller includes:

a first line memory for storing the n th image data applied from outside;

a second line memory in which the $(n-1)$ th image data applied in advance are stored; and

a control signal generator for generating an operation control signal after comparing the n th image data and the $(n-1)$ th image data; and

the control signal generator generates:

an operation control signal of a first status to let the data driver operate with the holding mode when all bits of the n th image data and the $(n-1)$ th image data are equal to each other;

an operation control signal of a second status to let the data driver operate with the inverting mode when all bits of the nth image data and the (n-1)th image data are complementary to each other; and

5 an operation control signal of a third status to let the data driver operate with the updating mode when at least one bit of the nth image data and at least one corresponding bit of the (n-1)th image data are not equal or complementary to each other.

4. The liquid crystal display of claim 1, wherein the timing controller does not provide the nth image data to the data driver when all bits of the nth image data and the (n-1)th image data are equal or complementary to each other.

5. The liquid crystal display of claim 3, wherein the timing controller generates an operation control signal whose status changes by 1H period by comparing the nth image data and the (n-1)th image data during 1H period and the data driver holds, inverts, or updates the image data by 1H period.

15 6. The liquid crystal display of claim 3, wherein the timing controller generates an operation control signal whose status changes as many times as the number of the data drivers by 1H period by comparing the nth image data and the (n-1)th image data for each data driver during 1H period and the data driver holds, inverts, or updates the image data for each data driver.

20 7. The liquid crystal display of claim 3, wherein the timing controller generates an operation control signal whose status changes as many times as the number of pixels of the line by 1H period by comparing the nth image data and the (n-1)th image data for each pixel during 1H period and the data driver holds, inverts, or updates the image data for each pixel.

25 8. The liquid crystal display of claim 2, wherein the operation control signal is a 2-bit signal, and

the data driver includes:

an exclusive logical sum operator for performing an exclusive logical sum operation based on a first bit of the operation control signal;

30 a first multiplexer for selecting one, based on a second bit of the operation control signal, from a first input which is a signal provided from the exclusive logical sum operator and a second input which is image data provided from the timing controller and outputting the selected signal;

a D flip-flop for outputting image data selectively provided from the first multiplexer according to a signal applied to a clock terminal; and

a logical multiplication operator for a logical multiplication operation of the applied data clock signal and a Carry signal and providing a result of the operation to the clock terminal of the D flip-flop.

9. The liquid crystal display of claim 8, wherein the data clock signal is applied when at least one bit of the n th image data and at least one corresponding bit of the $(n-1)$ th image data are not equal or complementary to each other.

10. The liquid crystal display of claim 1, wherein the liquid crystal display has a COG (chip on glass) structure.

11. The liquid crystal display of claim 11, wherein the image data is transmitted to the data driver by RSDS (reduced swing differential signaling).

12. A driving method of a liquid crystal display, which includes a plurality of gate lines, a plurality of data lines which are insulated from and intersects the gate lines, and a plurality of pixels each of which is formed in an area defined by the data line and the gate line and has a switching element connected to the gate line and the data line, the method comprising:

providing data voltages according to image data to the data line; and

making the data voltage be applied to the pixel by providing a gate

voltage to the gate line,

wherein the provision includes:

comparing $(n-1)$ th image data provided in advance and n th image data being provided currently;

providing data voltages corresponding to the $(n-1)$ th image data to the data line when all bits of the n th image data and the $(n-1)$ th image data are equal to each other;

inverting the $(n-1)$ th image data and providing data voltages corresponding thereto when all bits of the n th image data and the $(n-1)$ th image data are complementary to each other; and

providing data voltages corresponding to the n th image data to the data line when at least one bit of the n th image data and at least one corresponding bit of the $(n-1)$ th image data are not equal or complementary to each other.

13. The method of claim 12, wherein the provision compares the nth image data and the (n-1)th image data during 1H period.

14. The method of claim 12, wherein the provision compares the nth image data and the (n-1)th image data for each data driver of the liquid crystal display during 1H period.

15. The method of claim 12, wherein the provision compares the nth image data and the (n-1)th image data for each pixel during 1H period.